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Water [E]Quality in Haiti

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"Water, water, every where,
And all the boards did shrink;
Water, water, every where,
Nor any drop to drink."
The Rime of the Ancient Mariner

Abstract

Due to a devastating earthquake in Haiti on January 12, 2010, causalities due to waterborne contaminants escalated. The purpose of this research is to educate the people of Haiti of the importance of sanitary water by presenting them with a means to chlorinate it.

A chlorination method will be presented to the communities. Pamphlets will also be distributed to educate the Haitian people as to the importance of contaminant-free water. The desired outcome is a decreased occurrence of typhoid fever and cholera in Haiti.

Background

- Two most prominent water-borne diseases: cholera and typhoid fever
- 6,000 Haitians died in September 2011 alone due to *Vibrio cholerae*
- Cholera ingestion induces diarrhea, rapid water loss, and possible death
- Typhoid fever causes high temperatures, weakness, and stomach pains
- A chlorination system would largely decrease the percentage of pathogenic bacteria in Haiti's water sources

"Women spend thousands of hours each year collecting and carrying water."

"Only 63% of the world's population have access to improved sanitation."

Project Goals/Objectives

Educate the people of Haiti about the importance of:

- Clean water and its health benefits
- Health risks involved with drinking contaminated water

Offer Haitians a means to chlorinate their water through the use of a bucket chlorination system.

Chlorination Bucket Distribution

- Provide families with a labeled chlorine bottle and a bucket containing a tap and lid for safe water storage
- Chlorine will be provided to each family for ten cents per month
- Proceeds from the chlorine sales will pay for three full-time and one part-time Community Health Technician

Oversight of Chlorination in Haiti

- Each community will have Community Health Technicians employed to oversee the program
- Technicians are trained to generate chlorine, teach families to use system properly, test for proper chlorine dosage, and ensure adequate hygiene of buckets
- Keeping records of chlorination bucket users and financial data are also duties of Technicians
- Refresher courses on proper chlorination usage will be held on a monthly basis

"The ancient Romans had better water quality than half the people alive now."

"Half of the worlds hospitalizations are due to water-related disease."

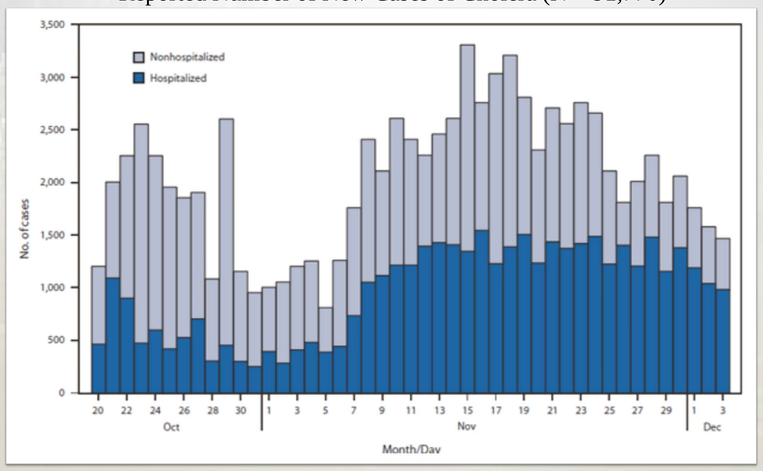
Chlorination Instructions

- Fill a five gallon storage bucket with water
- Add one capful of chlorine (two for muddy water)
- Stir and wait thirty minutes before drinking

Results/Outcomes

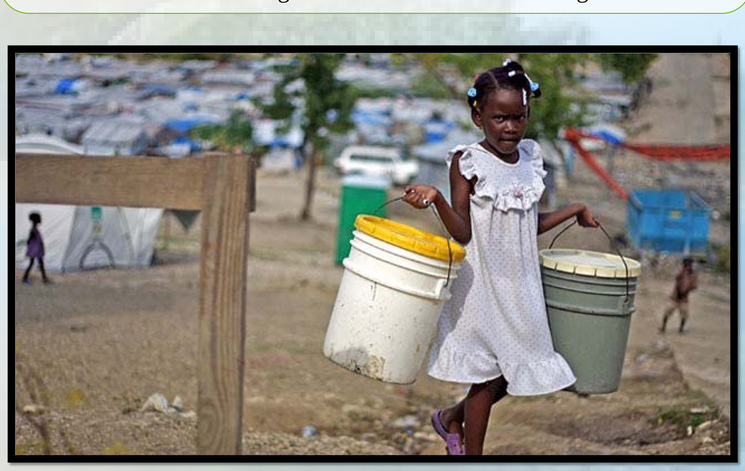
- Decrease occurrence of typhoid fever and cholera in Haiti
- Increase life expectancy and birth rate
- Create jobs within communities; promote local economy
- Reduce likelihood of diarrheal and other waterborne diseases

Reported Number of New Cases of Cholera (N = 91,770)



Recommendations

Prolonged ingestion of chlorine has the possibility of increasing the risk of bladder and rectal cancer. In the future, as filtration research advances, one should consider switching to an alternate means of ensuring their drinking water is indeed worth drinking.



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"Waterborne diseases cause **1.4 MILLION** children's deaths *every* year."